Hatchery Subyearling Survival Lower Granite to McNary Dam 1998 to 2007

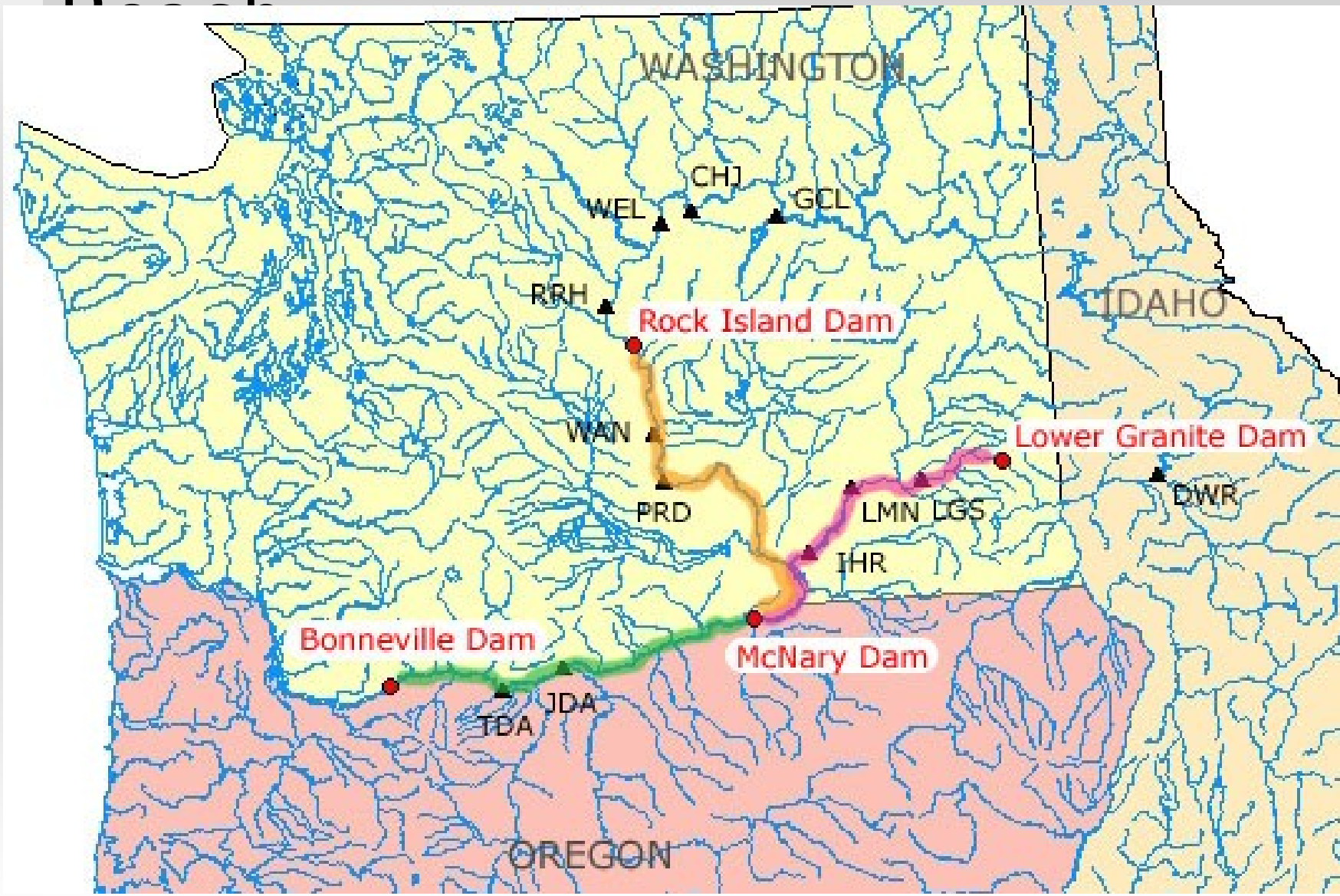
(preliminary results)

Fish Passage Center

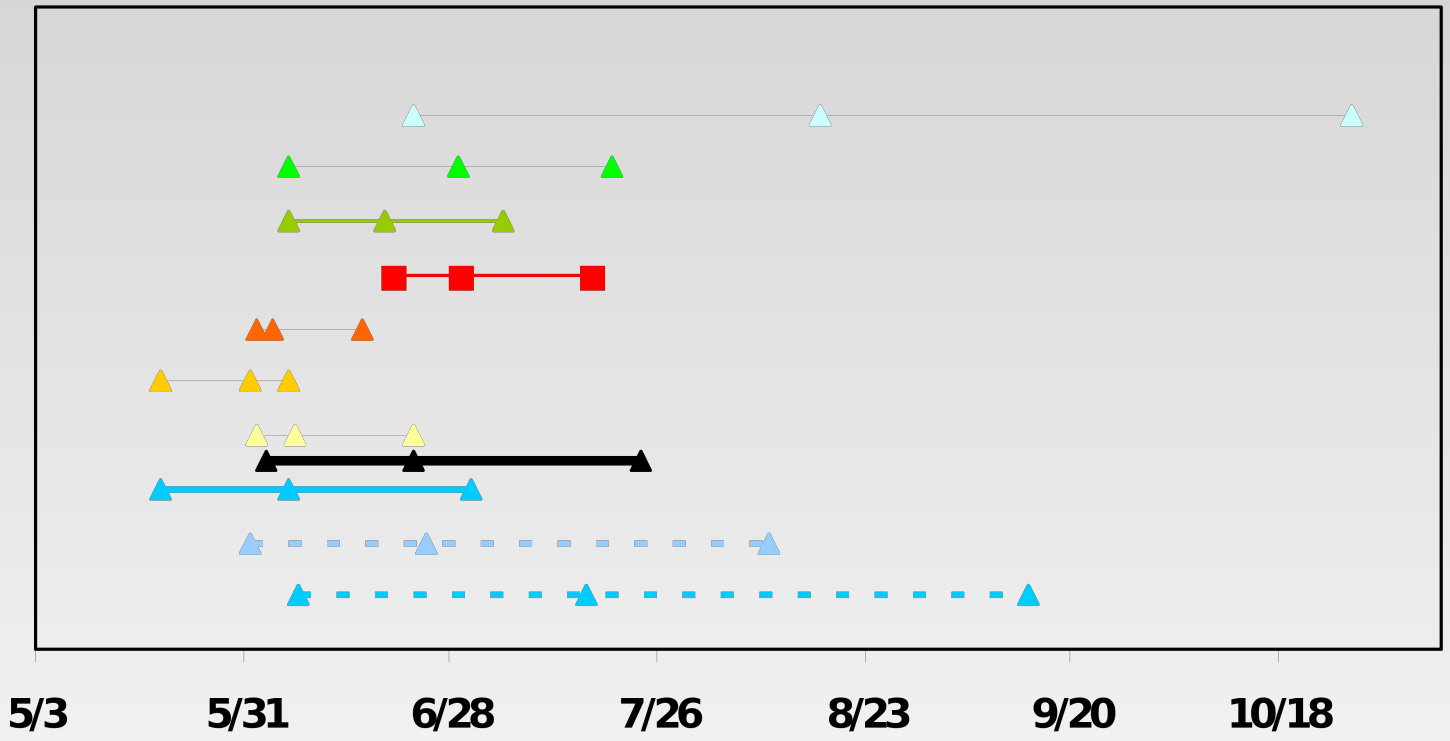
Overview

- PIT-tagged Hatchery Subyearling Chinook passing LGR dam during two-week blocks from May 20 to July 15 each year
- Estimate Survival and Travel Time for blocks
- Assign average environmental variables during passage such as Flow, Spill, Temperature and Water Transit Time
- Show bivariate plots of Reach Survival and environmental variables.

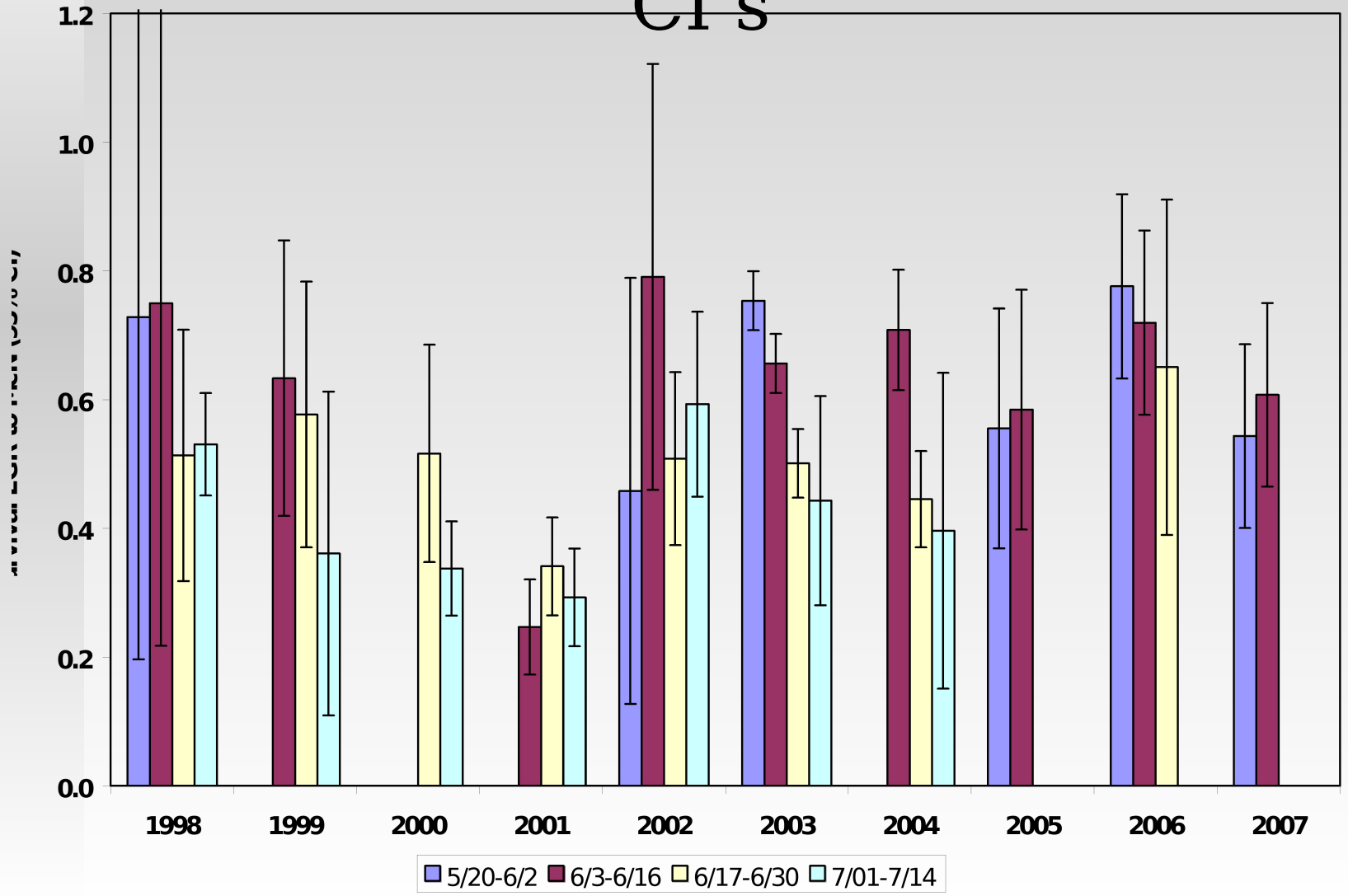
Lower Granite to McNary Dam Reach



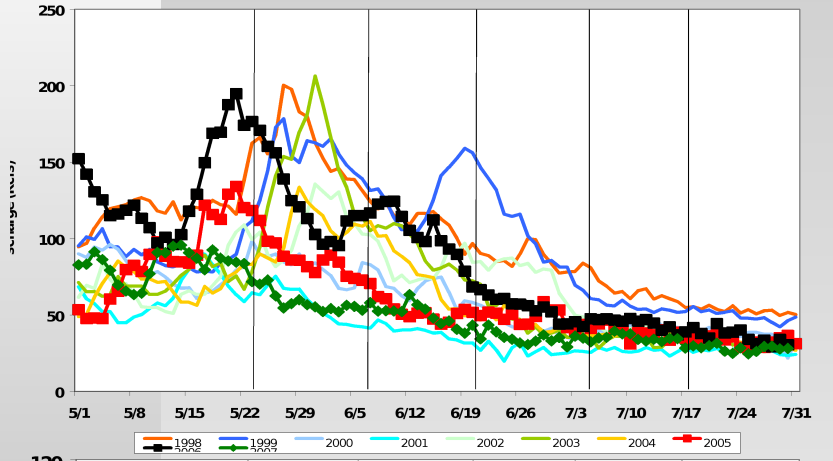
Timing of Subyearling fall Chinook at LGR Dam in 2007 compared to Historic Timing

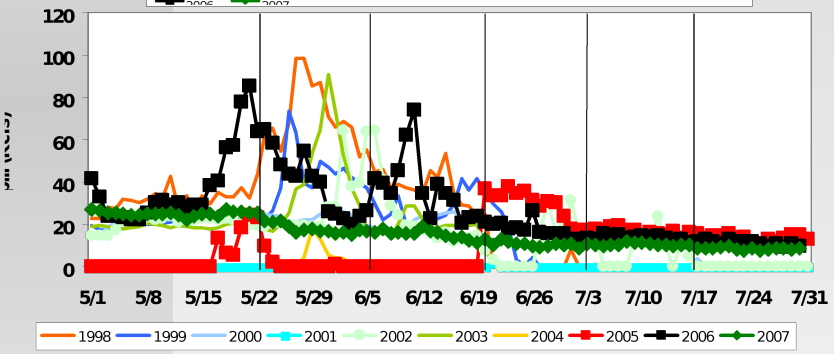


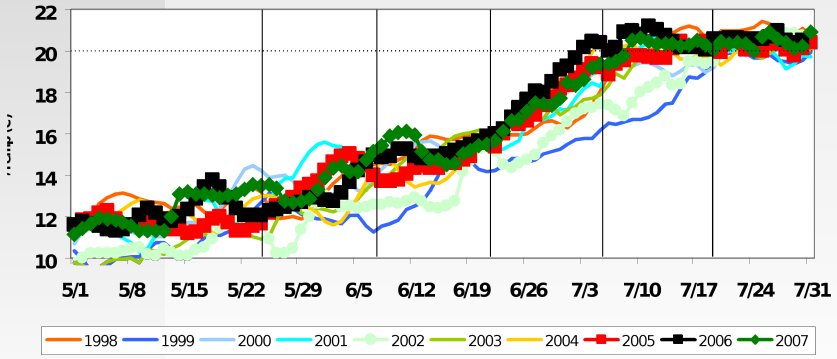
Survival for Hatchery Subyearling Chinook LGR to McN 1998 to 2006 with 95% CI's



Comparison of Environmental conditions at LGS 1998 to 2007





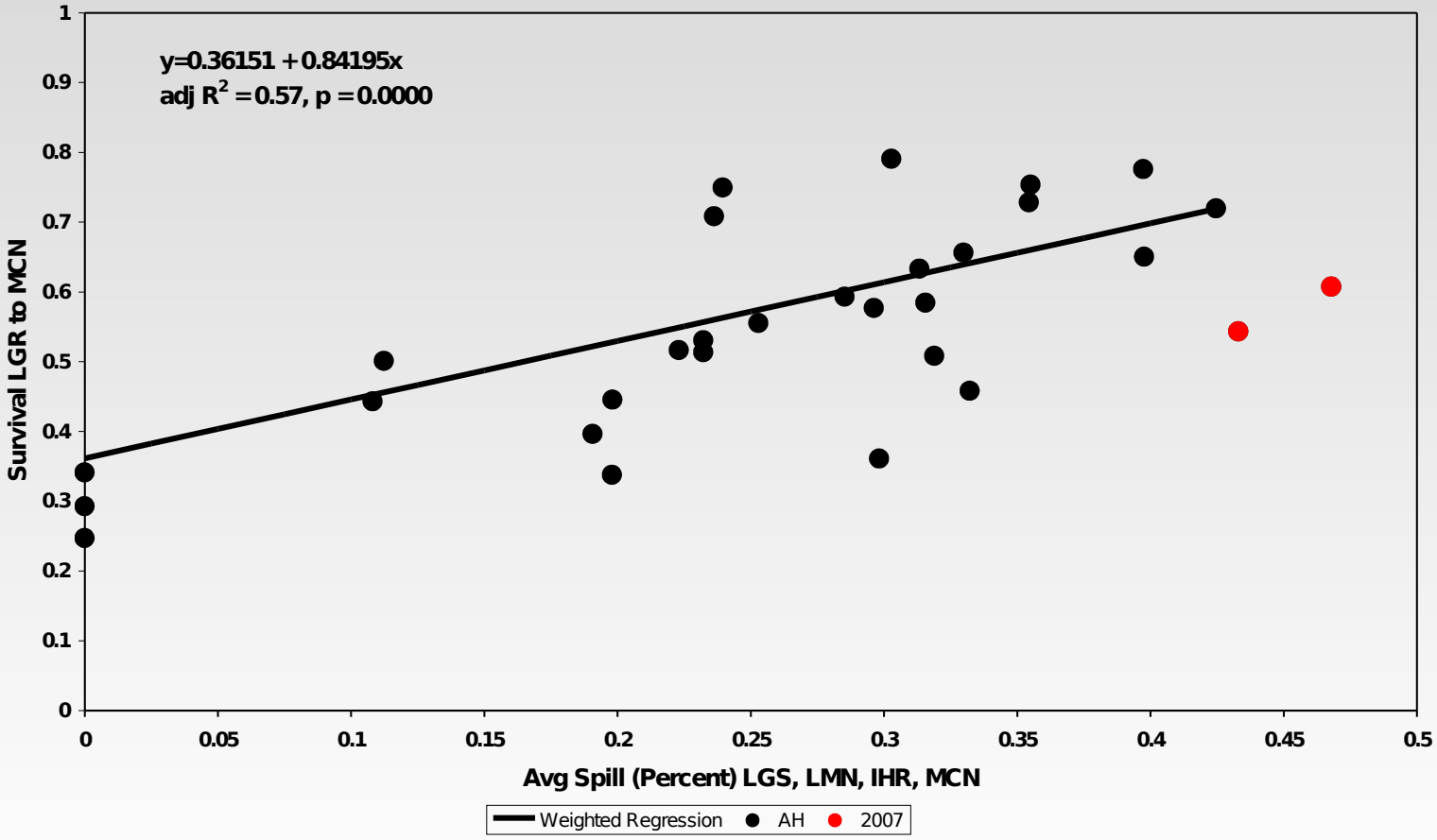


Flows in 2007 were low from late May through the end of July; similar to 2001

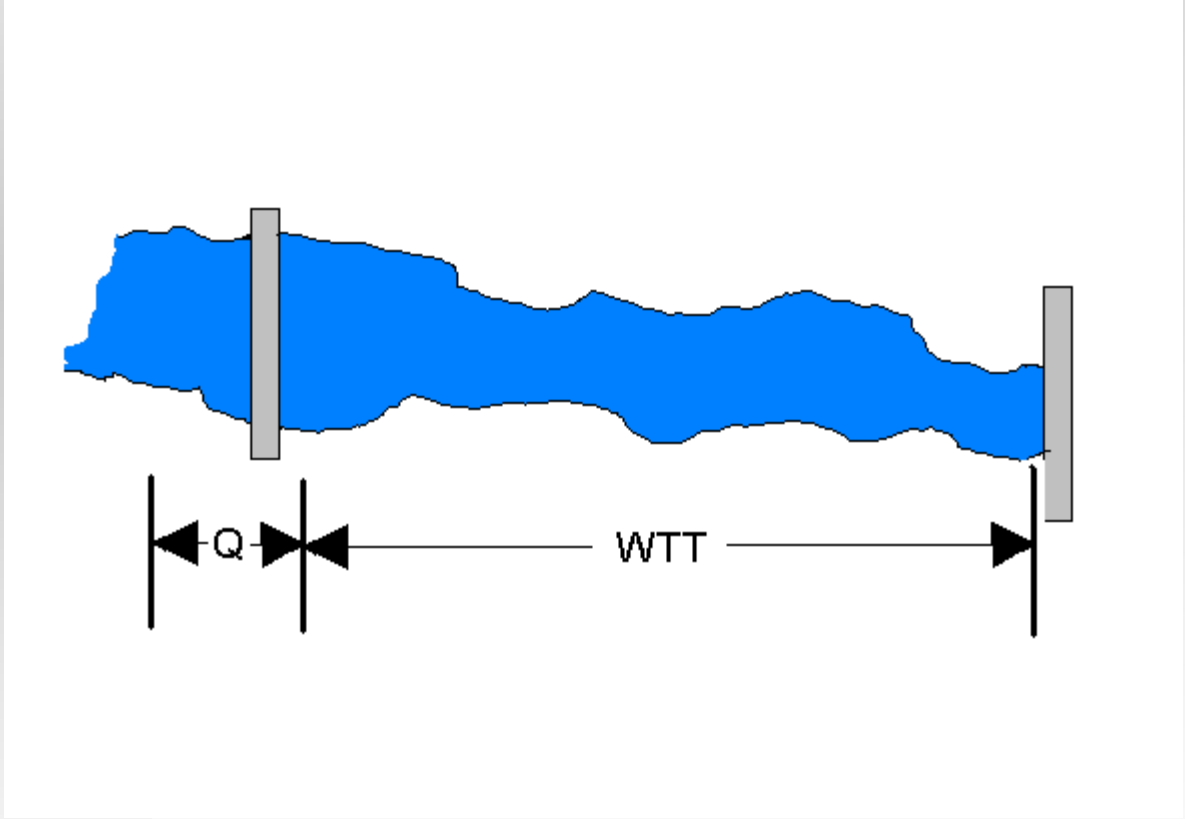
Spill proportion was high in 2007 but volumes were low

Temperatures were warm in 2007 similar to 2005 and 2006

Hatchery Subyearling Chinook Survival vs Avg Spill Pct LGS, LMN, IHR, McN

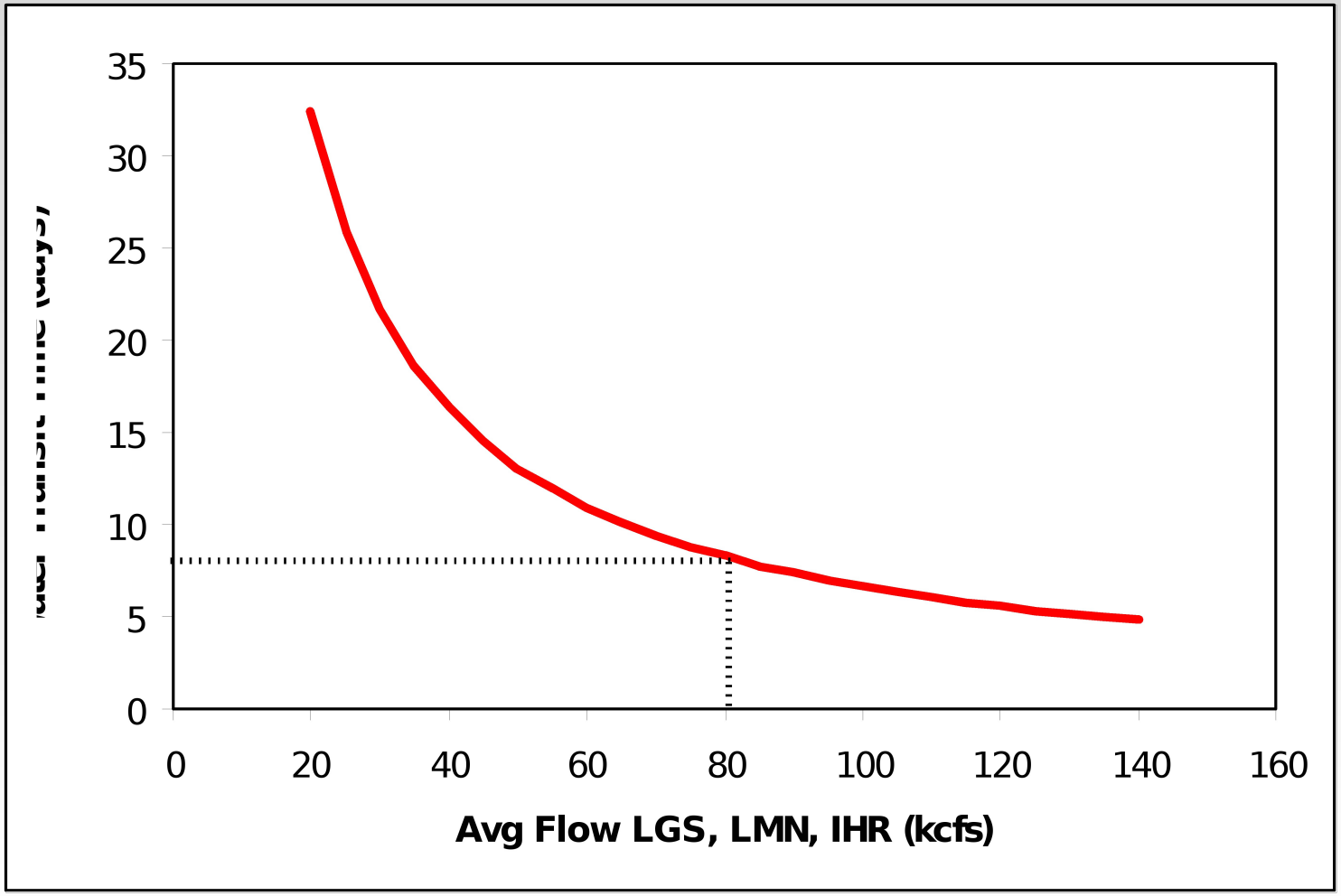


Water Transit Time

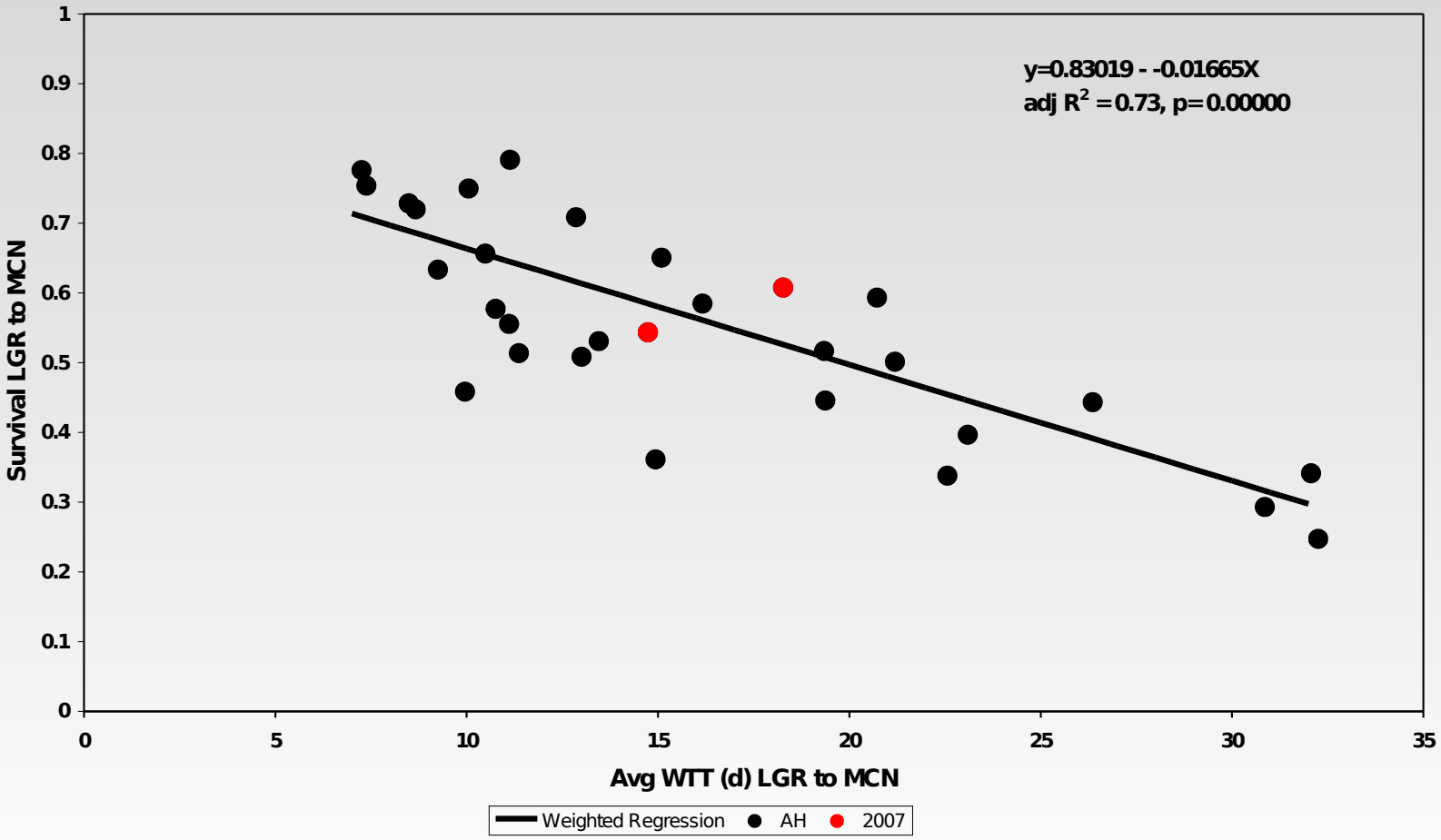


- WTT--Avg Time for Water Particle to Transit Reservoir
- Q -- discharge at dam

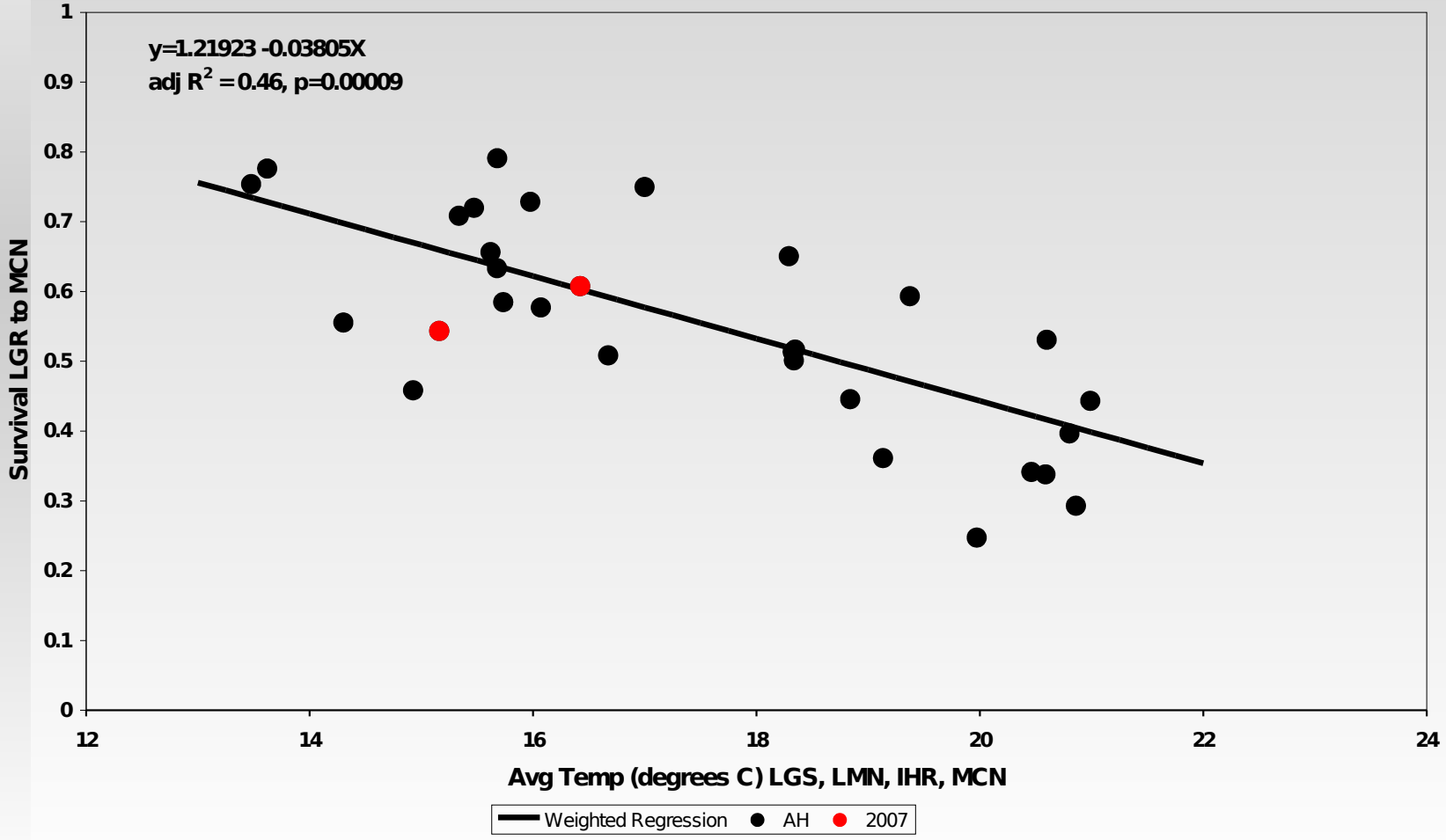
Converting Flows to Water Transit Time



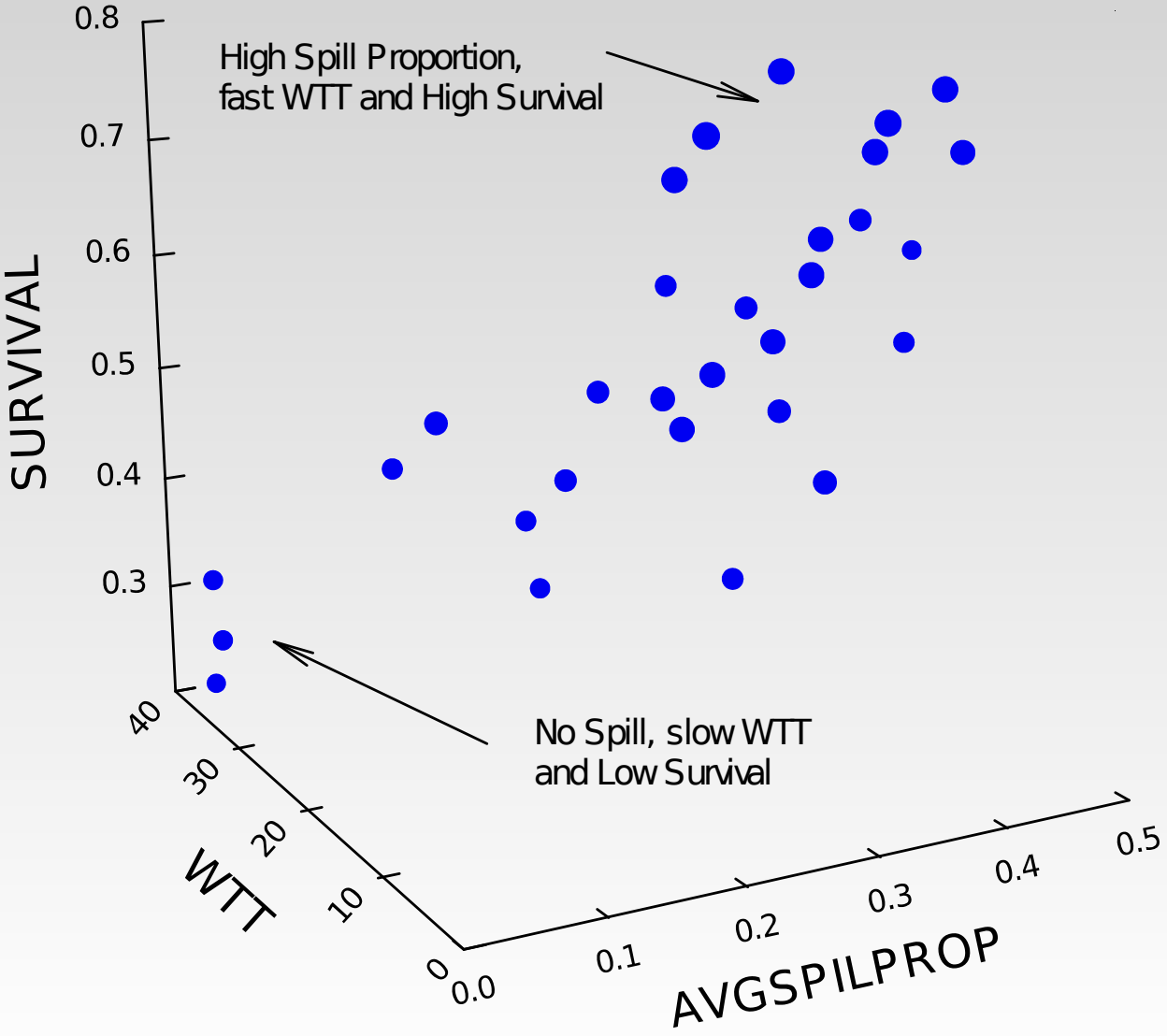
Hatchery Subyearling Chinook Survival vs sum WTT LGS, LMN, IHR, McN



Hatchery Subyearling Chinook Survival vs Avg Temp LGS, LMN, IHR, McN



Hatchery Subyearling Chinook Survival vs WTT and Spill Proportion



Conclusions

- For actively migrating subyearling Chinook, increased spill and decreased water transit time (higher flows) appear to improve survival, while higher temperatures decrease survival